

LESSON PLAN

Unit 3. HERITAGE

X-XXX-XXX2 Rev B

Topic 3.3 Heritage - Weapons

CLASS PERIODS: 2

LAB PERIODS: 0

Enabling Objectives:

- 20.5 **IDENTIFY** the major Weapon Categories, including major Types and Use in accordance with Bluejackets Manual, 21st Edition

Trainee Preparation Materials:

A. Trainee Support Materials:

1. None

B. Reference Publications:

1. None

Instructor Preparation:

A. Review Assigned Trainee Material

B. Reference Publications:

1. Bluejackets Manual 21st Edition, ISBN 1-55750-050-9
2. Chinfo.Navy.mil/navpalib/factfile/weapons/, none

C. Training Materials Required:

1. Transparencies

- a. AGM-88 "HARM" Missile, 3-3-5
- b. AIM-120 "AMRAAM" Missile, 3-3-4
- c. AIM-9 "Sidewinder" Missile, 3-3-3
- d. Heritage Part Three - Sea Power, 3-3-1
- e. Mark 15 "Phalanx" Close-in Weapon System (CIWS), 3-3-13
- f. Mark 38/25-mm Machine Gun, 3-3-11
- g. Mark 45, 5-inch/54-caliber Gun, 3-3-12
- h. Mark 46 Torpedo, 3-3-14
- i. Mark 56/57 Mine, 3-3-15
- j. RGM-84D "Harpoon" Missile, 3-3-7
- k. RIM-66 "Standard MR" (SM-1MR) Missile, 3-3-8
- l. RIM-67 "Standard ER" (SM-2ER) Missile, 3-3-9
- m. RIM-7H "NATO Sea Sparrow" Missile, 3-3-6
- n. Summary, 3-3-16
- o. Trident D-5 Ballistic Missile, 3-3-10
- p. Weapon Classifications, 3-3-2

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DISCUSSION POINT

1. Introduction

RELATED INSTRUCTOR ACTIVITY

1. Establish Contact.

Write name on VAP board.

Introduce Yourself.

Just as it is important to know Naval ships and airplanes, it's useful to recognize the weapons carried by these platforms and to know their capabilities. In this lesson, we will discuss major weapons categories, their types, and their uses.

State Lesson Objectives.

Reference Bluejackets Manual 21st Edition, ISBN 1-55750-050-9.

Show Transparency 3-3-1, Heritage Part Three - Sea Power.

2. Major Weapon Classifications

a. Missiles and rockets

2. Show Transparency 3-3-2, Weapon Classifications.

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DISCUSSION POINT

- (1) Missile - self-propelled, unmanned vehicles that carry conventional explosives or nuclear warheads
- (2) Has a guidance system that controls its direction in flight
- (3) They are fired from land, surface ships, submarines, or aircraft
- (4) Air-to-air missiles
 - (a) AIM-7 Sparrow III
 - 1) Highly maneuverable all-weather, radar-guided intercept missile used by fighter aircraft
 - 2) Contains a high explosive warhead

RELATED INSTRUCTOR ACTIVITY

- (2) NOTE: A rocket is a small missile that has no self-contained guidance system.
- (4) Reference Internet Address WWW.
Chinfo.Navy.mil/navpalib/factfile/weapons/, none.

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- | | |
|---|--|
| <ul style="list-style-type: none">3) Being phased out by AIM-120 AMRAAM missile system
4) Also used in surface-to-air missile defense system as NATO Sea Sparrow
(b) AIM-9 Sidewinder
1) Heat-seeking, short-range, missile carried by fighter aircraft
2) Has a high-explosive warhead and an infrared seeker guidance system
3) Most widely used air-to-air missile in our inventory
(c) AIM-54 Phoenix | <ul style="list-style-type: none">(b) Show Transparency 3-3-3, AIM-9 "Sidewinder" Missile. |
|---|--|

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- 1) Long-range air intercept missile
- 2) Contains:
 - a) a high-explosive warhead and proximity fuze
 - b) active-radar terminal homing
- 3) Carried on the F-14 Tomcat
- (d) AIM-120 Advanced Medium-range (AMRAAM)
- 1) Has all-weather, beyond-visual-range capability

- (d) Show Transparency 3-3-4, AIM-120 "AMRAAM" Missile.

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- 2) Incorporates an active radar in conjunction with an inertial reference unit and micro-computer system
- 3) Fire-and-forget capability:
 - a) Allows the pilot to fire several missiles simultaneously at multiple targets, and leave the area while the missiles guide themselves to the targets
- (5) Air-to-surface missiles
 - (a) AGM-65 Maverick
 - 1) An air-to-surface tactical missile designed for:

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- a) Close air support
- b) Interdiction
- c) Defense suppression
- 2) Effective against, a wide range of tactical targets, including:
 - a) Armor
 - b) Air defenses
 - c) Ships
 - d) Ground transportation

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- e) Fuel storage facilities

- (b) AGM-84E SLAM (Stand-off Land Attack Missile)
 - 1) Harpoon missile used by tactical aircraft for land attack

 - 2) An infrared missile used for long-range precision strikes

 - 3) An upgraded missile called SLAM-ER provides:
 - a) Greater range

 - b) A titanium warhead

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- | | |
|---|--|
| <ul style="list-style-type: none">c) Software improvements
(c) AGM-88 HARM (High-speed Anti-Radiation Missile)<ul style="list-style-type: none">1) Designed to detect, attack, and destroy a target with minimum aircrew input
2) Contains a guidance system that homes in on enemy radar emissions
(d) Penguin Anti-ship Missile<ul style="list-style-type: none">1) A helicopter-launched missile developed for use on Lamps III helicopters | <ul style="list-style-type: none">(c) Show Transparency 3-3-5, AGM-88 "HARM" Missile.<ul style="list-style-type: none">1) NOTE: This missile was proven effective against Libyan targets in 1986 and was used extensively in Operation Desert Storm. |
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DISCUSSION POINT

- 2) Has a "fire-and-forget" mode to allow multiple target acquisition

(6) Surface-to-air/surface Missiles

(a) RIM-7H NATO Sea Sparrow

- 1) Used as an anti-missile and anti-air defense system
- 2) Can be used against surface targets
- 3) Surface-to-air version of the AIM-7E Sparrow III

(b) RGM-84D Harpoon

RELATED INSTRUCTOR ACTIVITY

- (a) Show Transparency 3-3-6, RIM-7H "NATO Sea Sparrow" Missile.

- (b) Show Transparency 3-3-7, RGM-84D "Harpoon" Missile.

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- | | |
|--|---|
| 1) An all-weather, over-the-horizon, anti-ship missile system | |
| 2) Capable of being launched from surface ships, submarines, or aircraft | |
| 3) Using its active radar guidance, warhead design, and low-level, sea-skimming cruise trajectory assures high survivability and effectiveness | |
| (c) RIM-66 Standard MR (SM-1MR) | (c) Show Transparency 3-3-8, RIM-66 "Standard MR" (SM-1MR) Missile. |
| 1) A medium-range, semi-active, radar homing missile with surface-to-surface capability | |
| 2) Primarily used onboard frigates | |

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DISCUSSION POINT

- (d) RIM-67 Standard ER (SM-2ER)
 - 1) An extended-range version of the RIM-66
 - 2) Has vertical launch capabilities
 - 3) Used on all missile-carrying ships except frigates
- (e) D-5 "Trident II" Fleet Ballistic Missile (FBM)
 - 1) A three-stage, solid-propellant, inertially-guided FBM with a range of more than 4,000 nautical miles

RELATED INSTRUCTOR ACTIVITY

- (d) Show Transparency 3-3-9, RIM-67 "Standard ER" (SM-2ER) Missile.
- (e) Show Transparency 3-3-10, Trident D-5 Ballistic Missile.

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- 2) Carried onboard fleet ballistic submarines (FBMs)
 - 3) An integral part of U.S. strategic deterrent program
 - 4) Number of MIRV nuclear warheads
- (f) BMG-109 "Tomahawk" Cruise Missile
- 1) Long-range, subsonic cruise missile used for land attack warfare
 - 2) An all-weather, submarine- or ship-launched missile

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- 3) Uses inertial navigation and terrain contour matching (TERCOM) guidance system to ensure the missile stays on course
- 4) Types of warheads (e.g., HE, cluster, nuclear, etc.)

b. Bombs

- (1) Any weapon, other than a torpedo, mine, rocket, or missile, dropped from an aircraft
- (2) Bombs are free-fall explosive weapons and may be either dumb (unguided) or smart (with a guidance system)
- (3) Classes of Bombs

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

(a) Explosive

- 1) General-purpose (GP) bombs are used against unarmored ships or ground targets for blast or fragmentation
- 2) Semi-armor-piercing (SAP) bombs are used against carriers, cruisers, and "hardened" ground targets
- 3) Fragmentation bombs are very small explosives dropped in clusters against troops and ground targets

(4) Weights

(a) 500

(b) 1,000

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

(c) 2,000

(5) Types

(a) AGM-62 Walleye

1) A TV-guided glide bomb

2) Used for close air support

3) A larger version, called Walleye II, was used in Operation Desert Storm

3) NOTE: The Walleye II was nicknamed "Fat Albert."

(b) AGM-83A Bulldog - a laser-guided missile used for more effective close air support

c. Guns

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DISCUSSION POINT

- (1) Mark 38, 25-mm Machine Gun System (MGS)
 - (a) Used for defense against small, fast-attack boats
 - (b) A heavy machine gun with an effective range of 2,700 yards
 - (c) Single-barrel, air-cooled, semi- and full-automatic, manually-trained gun
- (2) Mark 45, 5-inch/54-caliber Gun System
 - (a) Lightweight gun which provides surface combatants accurate naval gunfire against:
 - 1) Fast, highly maneuverable surface targets

RELATED INSTRUCTOR ACTIVITY

- (1) Show Transparency 3-3-11, Mark 38/25-mm Machine Gun.
 - (a) NOTE: This gun was designed for and used effectively in Operation Desert Storm.
- (2) Show Transparency 3-3-12, Mark 45, 5-inch/54-caliber Gun.

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- | | |
|--|--|
| <ul style="list-style-type: none">2) Air threats
3) Shore targets during amphibious operations
(3) Mark 75, 3-inch/62-caliber Gun System<ul style="list-style-type: none">(a) A lightweight, rapid-fire, three-inch gun mounted on small combatant ships(b) Single-barrel, water-cooled, remote controlled gun(c) Can be used against both surface and air targets
(4) Mark 15 Phalanx Close-In Weapons System (CIWS) | <ul style="list-style-type: none">(4) Show Transparency 3-3-13, Mark 15 "Phalanx" Close-in Weapon System (CIWS). |
|--|--|

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- (a) Fast-reaction, rapid-fire 20-millimeter gun system
- (b) Has self-contained search and track radar
- (c) Provide ships with a terminal defense against anti-ship missiles and fixed-wing aircraft that have penetrated other fleet defenses
- (d) The system automatically:
 - 1) Searches for targets
 - 2) Detects targets
 - 3) Performs threat evaluation
 - 4) Acquisition and track targets

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- 5) Firing
- 6) Target destruction assessment
- 7) Kill assessment, and
- 8) Cease fire

d. Torpedoes

- (1) Self-propelled guided projectile that operates underwater
- (2) Designed to detonate on contact or in proximity to a target
- (3) Can be launched from surface ships, submarines, helicopters, or fixed-wing aircraft

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- (4) They may also be used as parts of other weapons:
 - (a) The mark 46 Torpedo becomes the warhead section of the ASROC (Anti-Submarine Rocket)
 - (b) The Captor mine uses a submerged sensor platform that releases a torpedo when a hostile contact is detected
- (5) Types
 - (a) Mark 48 Heavyweight Torpedo
 - 1) Designed to combat fast, deep-diving nuclear submarines and high performance surface ships
 - 2) Carried by all Navy submarines

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- 3) The improved version, Mark 48 ADCAP, is carried by:

- a) Seawolf-class attack submarines

- b) Los Angeles-class attack submarines

- c) Ohio-class ballistic missile submarines

- (b) Mark 46 Lightweight Torpedo

- (b) Show Transparency 3-3-14, Mark 46 Torpedo.

- 1) Designed to attack high-performance submarines

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- 2) Designed to be launched from surface ship, ASROC missiles, helicopters, and fixed-wing aircraft

(c) Mark 50 Advanced Lightweight Torpedo

- 1) Designed for use against the faster, deeper-diving, and more sophisticated submarines
- 2) Can be launched from all ASW aircraft and from surface ships
- 3) Will replace the Mark 46 torpedo

e. Mines

- (1) Used as an anti-ship or anti-submarine weapon

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- (2) Can be delivered by air, surface, or submarine

- (3) Uses two methods of actuation:
 - (a) Contact mines fire when a ship strikes it

 - (b) Influence mines may be actuated:
 - 1) By the underwater sound generated in a passing ship's current

 - 2) By the ship's magnetic field

 - 3) By the reduced water pressure caused by a passing ship

- (4) Method of Planting

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- (a) Surface craft
- (b) Submarines
- (c) Aircraft
- (5) Positioned in the Water
 - (a) Moored contact mines are anchored in place and float near the surface of the water
 - (b) Bottom mines lie on the ocean floor and are used in relatively shallow water
- (6) Types
 - (a) Mark 56/57

- (a) Show Transparency 3-3-15, Mark 56/57 Mine.

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- 1) Oldest mine still in use
- 2) Used to destroy enemy shipping
 - a) Mark 56 mines laid by aircraft
 - b) Mark 57 mines laid by submarine
- (b) Mark 60 Captor
 - 1) Navy's primary anti-submarine mine
 - 2) Deep-water mine designed to be laid by aircraft or submarines
 - 3) Designed to ignore surface ships, but seek hostile submarines

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

- 4) Upon detection of a hostile submarine, a Mark 46 torpedo is launched

- (c) Mark 65 Quickstrike
 - 1) A shallow water mine used primarily against surface ships

 - 2) Deployed by aircraft

- (d) Mark 67 SLMM (Submarine-Launched Mobile Mine)
 - 1) Developed as a submarine-deployed mine

 - 2) Used in areas inaccessible for other mine deployment techniques or covert mining of hostile environment

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

3) Consists of a modified Mark 37 torpedo

3. Summary

3. Show Transparency 3-3-16, Summary.

a. Weapon category

b. Weapon type

c. Weapon uses

4. Assignment

a. None

5. Evaluation

a. None